Name:_____ Period:_____ Date:_____

Describe the transformation $f(x) = 4^x$ undergoes for each new function.

1. $g(x) = 4^{x-1}$

2. $h(x) = 4^{x+4}$

3. $m(x) = 4^x + 4$

4. $n(x) = \frac{1}{2}(4^x)$

5. $r(x) = 3(4^{-x}) + 1$

6. $s(x) = -4^x - 2$

Transformations Involving Exponential Functions

Transformation	Equation $g(x) = b^x$	Description
Horizontal Translation L		
Horizontal Translation R		
Vertical Translation L		
Vertical Translation R		
Reflect y-axis		
Reflect x-axis		
Vertical Stretch		
Vertical Shrink/ Compress		

$$y = a \cdot b^{(x-d)} + c$$

a	
b	
c	
d	
x	

Name:_____Period:_____Date:_____

Exponential Functions and Transformations In-Class Activity/Homework

The parent function is $f(x)=2^x$. Describe each transformation in words.

a. $f(x) = 2^x - 3$

b. $f(x) = -2^x$

c. $f(x) = 2^{-x}$

d. $f(x) = 5 \cdot 2^{x-3}$

e. $f(x) = 3 \cdot 2^x + 3$

f. $f(x) = 2^{x+4} - 5$

Given the parent function $f(x)=1.5^x$, write the transformation equation that would do the following:

a. Up 6 and left 2

b. Vertical stretch by 3 and reflection across x-axis

c. Down 5 and right 4

d. Reflection across vertical axis and up 1

Identify each function as linear, quadratic, or exponential

b. $f(x) = 3x^2 + 4x + 7$

b. $f(x) = 3(4.290)^{x+5}$

c. $f(x) = 12.5x - 9.83$

d. $f(x) = 38{,}390 - 93.39x^2$

e. $f(x) = 2^x + 3$

f. $f(x) = 2x + 3$